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ABSTRACT

Increasingly, a majority of postsecondary students are following nonlinear paths in the pursuit of educational and career goals. Practical steps are described that can be taken to track and evaluate the success of such students. A particularly promising practice involves data sharing and exchanges with state agencies and other higher education institutions. In addition to sample findings and reports, the issue of confidentiality of individual student records is addressed. Contains 13 references. (Author/KM)

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TRACKING AND FOLLOW-UP FOR NON-TRADITIONAL STUDENTS: INSTITUTIONAL AND STATEWIDE INITIATIVES

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TRACKING AND FOLLOW-UP FOR NON-TRADITIONAL STUDENTS:

INSTITUTIONAL AND STATEWIDE INITIATIVES

ABSTRACT

Increasingly a majority of postsecondary students are following nonlinear paths in the pursuit of educational and career goals. This paper describes practical steps that can be taken to track and evaluate the success of such students. A particularly promising practice involves data sharing and exchanges with state agencies and other higher education institutions. In addition to sample findings and reports, the issue of confidentiality of individual student records is addressed.

TRACKING AND FOLLOW-UP FOR NON-TRADITIONAL STUDENTS: INSTITUTIONAL AND STATEWIDE INITIATIVES

INTRODUCTION

Through the mid-1970s, research on student persistence and outcomes was primarily premised on the traditional full-time, residential student who was expected to achieve degree completion after four years. However, at the same time the works of Astin (1975), Tinto (1975), and others were appearing in the literature, the basic characteristics of higher education's student population were in the process of transformation. Older, part-time, and commuter students became the norm, introducing new variables that challenged the assumptions upon which the prevailing literature was based.

Although most pronounced at the community college level, non-traditional students also are becoming a significant factor within four-year colleges, especially urban commuter institutions. Discontinuous attendance patterns, student goals that do not include degree completion, and an increase in the number of years to degree completion have all complicated within-college student tracking. After-college tracking also has become more complicated in that the traditional alumni survey may no longer produce needed results for relevant student sub-populations. Yet, higher education institutions are increasingly being asked to document student progress and outcomes to meet state government and regional accreditation review requirements, not to mention internal review needs.

This paper describes institutional research practices for both within- and after-college tracking of non-traditional students for the purposes of outcomes assessment. These practices are identified from a literature review, a specific institutional example, and statewide cooperative efforts.

LITERATURE REVIEW

The research on non-traditional students has focused primarily on persistence (Metzner and Bean, 1987; Pascarella, Duby, and Iverson, 1983; Pascarella, Smart, and Ethington, 1986; and Voorhees, 1987). The primary value of this research is that it is comparative, cumulative, and allows for causal inference. These strengths are also weaknesses when translated to a specific institutional context. Whether it be for internal review or external reporting requirements, colleges and universities need research specific to their own students. Further, many institutions need research findings unadorned by sophisticated statistical models if the results are to have any impact on faculty and staff (e.g., statistical significance does not always imply policy significance). Finally, many colleges do not have the resources or capabilities to conduct research that would replicate studies contained in the literature.

After-college experiences are tracked primarily through the traditional alumni/follow-up survey. Beyond specific institutional studies, there have been a relatively few longitudinal, multi-institutional studies. For example, several of these studies have focused on long-term persistence of community college students, especially with regard to transfer and bachelor's degree completion (Pascarella, Smart, and Ethington, 1986; Kinnick, Westine, and Kempner, 1987). Again, however, colleges and states need to conduct research on their own students and institutions. A major problem here is limited response rates, which can apply both to traditional and non-traditional students.

The tracking of students within college has focused on the causes of attrition, with particular focus on identifying factors associated with attrition that are susceptible to influence by the institution. For example, students underprepared for college can often be assisted through remediation

programs (Walleri, 1987; Alfred and Lum, 1988). With regard to non-traditional students, the basic finding from the research is that these students, and especially community college students, have a significantly higher rate of attrition than traditional students (Astin, 1975). This finding has become a generally accepted fact, with resulting political controversies, but three important qualifications often are overlooked. First, an appropriate timeframe has yet to be identified for the tracking of non-traditional students. Most student tracking studies are limited to 2-3 years for two-year colleges and 4-5 years for four-year institutions. Even the relatively few longitudinal studies of 10-20 years may underestimate the eventual educational attainment of non-traditional students. Second, the socio-economic background of non-traditional students generally places them at a disadvantage compared to traditional students (Washington State Board for Community College Education, 1989). Thus, one would expect these students to be less successful and/or take longer for degree completion. Third, most of the research on student retention assumes that the students are seeking a degree despite increasing evidence that this is simply not the case (Japely, Kennedy, and Walleri, 1987). Until such factors are routinely incorporated within research specific to non-traditional students, the typical cohort approach will have limited value. An institutional specific illustration of applying such controls is provided in this study.

After-college experiences are heavily dependent on the alumni/student follow-up survey. The limitations discussed above with regard to the analysis of non-traditional student retention have even greater impact when attempting to track beyond college experiences. In addition, the cost factor becomes critical, often resulting in low response rates, which in turn can undermine the credibility of the study. In addition to a relatively few long-term student tracking studies, several states have begun to address these issues

through multi-institutional studies and/or accessing state agency databases. Several examples of such an approach are reviewed herein, including political and methodological pitfalls.

A major issue arising from the above research deals with the success rate of community college transfer students in achieving the bachelor's degree. Several studies have found that students that begin their college education at a community college are less successful than native four-year college students (Pascarella, Smart, and Ethington, 1986; Kinnick, Westine, and Kempner, 1987). In addition to methodological issues, efforts to research this question can easily become embroiled in political issues relating to the role of education with regard to social stratification, competition between two- and four-year segments, etc. One outcome of such conflicts is simply not to conduct the research in the first place.

DESIGN AND METHODOLOGY

Within-college student tracking is discussed in terms of a specific institutional example. The focus is on issues to be considered in designing the system rather than results. If such research is to have institutional impact, considerable effort must be expended in obtaining consensus from the faculty on design specifications. Two complementary options are reviewed. The first is based on standard tracking by student major. The second option involves student declared goals, which both sets the criteria for evaluating student progress and allows for the identification of sub-group populations. For example, this approach differentiates between non-degree and degree seeking students and can be used to adjust the retention rates derived from the first approach. The process by which one college defined the criteria for both measuring and evaluating persistence and student success along this route is described.

After-college student tracking is discussed within the context of one state's effort to develop a cooperative program based on data sharing and exchange. Two examples are covered. The first deals with linking community college vocational student records with those of the state's employment agency. This approach has achieved a match rate of over 90 percent and allows for both short- and long-term tracking with regard to placement by industry, average weeks employed by year, and wage earnings. Issues include reconciling disparate coding schemes such as occupational categories versus student program majors. Yet another concern is policies and procedures for ensuring the confidentiality of individual student records while maximizing the utility of the results.

The second and so far less successful effort involves a statewide reporting system on the performance of community college students who transfer to the state system's four-year colleges and universities. A sensitive issue in this example is the inevitable comparison that policy makers will want to draw between community college transfer students and students native to the four-year institutions.

ILLUSTRATIONS AND FINDINGS

This section is divided into three parts covering within-college student tracking, after-college tracking of vocational program students through one state's employment records, and tracking community college transfer students at four-year institutions.

Intention and Retention

The institution from which this portion of the data is drawn is a comprehensive suburban community college serving a primarily white, middle class population. The annual unduplicated headcount of the college is over

25,000, but this student population generates less than 6,000 FTE. A commuter college, almost 75 percent attend part-time, nearly 60 percent of the students are women, 70 percent work full- or part-time, and the average age is 32. The 1987 graduating class included students who first attended the college 20 years earlier.

Table 1 below describes overall institutional completion rates through spring 1987 and 1988 for fall 1986 first-time students. Results also are broken down by self-declared student educational goal categories. The institutional summary excludes adult enrichment, vocational supplementary, ABE/GED, and other short-term, non-continuous programs. This reduces the original population of 2,525 first-time fall 1986 students to 1,855 and includes those enrolled in one- and two-year programs. For 1987-88 the population was reduced to 1,781 by limiting to students enrolled in two-year, associate degree programs.

In addition to persistence, Table 1 also reports the percentage of students making "significant progress," which for one year is 27 credit hours earned and a 2.00 cumulative GPA or higher, and for two years, 54 hours earned while maintaining the same 2.00 GPA or higher. This definition of significant progress was developed by a committee of faculty and administrators working with the institutional research office. The standard of nine credits per term is based on a recommended maximum load for a working student.

Of the original 1,855 students, 52 percent were still in attendance spring 1987 with almost 35 percent meeting the significant progress standard. After two years, the persistence rate was 31 percent and the rate of significant progress was almost 23 percent. Not suprisingly, much of the attrition occurs early in the student's program. Of those students persisting

TABLE 1. Persistence and Significant Progress Rates
First-Time Fall 1986 Students Through Spring 1987 and Spring 1988

Program Category***	Total	Retained SP 87	Significant Progress* SP 87	Retained SP 88	Significant Progress** SP 88
			(percentages)		
1 & 2 Year	1,855	52.3	34.6		
2 Year	1,781			31.0	22.7
by educational goal declared fall 1986:					
One or a Few Classes					
	274	19.7	5.5	10.2	4.0
Certificate (one-year program)					
	79	50.6	32.9	20.3	12.7
Associate Degree (two-year program)					
	680	58.4	43.4	36.3	29.9
Bachelor's Degree (lower division)					
	753	60.0	38.4	34.7	24.0
Other					
	41	36.6	24.4	17.1	9.8

* First-year significant progress is defined as 27 or more credits earned and a 2.00 or higher cumulative GPA.

** Two-year significant progress is defined as 54 or more credits earned and a 2.00 or higher cumulative GPA.

*** Student population limited to those enrolled in programs leading to a Certificate (one-year programs) or the associate degree (two-year vocational or lower division programs). The total by educational goal is slightly lower than the total population due to missing data.

through the first year, 57 percent completed the second year and 42 percent made significant progress.

The breakdown of persistence and progress rates by educational goal categories illustrates the impact of controlling for student intentions. Students aspiring to the Certificate or associate degree (primarily vocational majors) or to a bachelor's degree (primarily lower division majors) have higher persistence and progress rates than the overall college rate. This latter rate is lowered by those students with a goal of only one or few courses despite the fact that they are enrolled in a program requiring one to two years to complete. The findings suggest that either the student declared major or declared goal is not reflecting measures sought. Further, complete analysis would require controls for change in major or goal.

Of course, student intent is only one of several variables that need to be incorporated when attempting to measure student success. John Losak (1986) provides an analysis for Miami-Dade Community College based on tracking students for four years. Limited to first-time-to-college, full-time degree seekers, this study revealed a 31 percent graduation rate and an overall 70 percent success rate (still enrolled in good standing or left college in good standing). A similar finding is obtained for the analysis reported here if also limited to full-time students. The inclusion of part-time students, the vast majority, severely complicates the analysis due to protracted and discontinuous enrollment patterns. The key point is that an accurate description of the success rate of non-traditional students requires a fairly elaborate analysis, which explains the relative lack of such studies.

Tracking Through State Wage Records

Several states are using agency wage records kept for unemployment

insurance purposes to track student after-college employment and salary patterns. This is a cost effective approach for non-traditional students compared to the relatively high cost of and low response from traditional student follow-up surveys. It is especially effective for vocational programs since employment within a specific occupational area is the goal of the program.

The illustration given below is taken from the state in which the community college discussed in the previous section is located. In this particular state, each college can submit a tape with student identification numbers (SSN) and the state agency will match those IDs against its wage records. To protect the confidentiality of the wage records, all individual identifications are suppressed, with only summary program/occupational data in the resulting reports.

Table 2 describes sample reports that can be created from this tracking system. Two programs are reported, Nursing and Automotive Technology, for two graduating classes, 1982-83 and 1985-86. The student samples include associate degree graduates and former students who only completed part of their program. The wage record data covers three years, 1985 through 1987. All of these students for both years were matched against the wage records at the same time, early 1988.

The reports describe the number of students and year of program completion or college exit, number and percentage found in the state's wage records, percentage of weeks worked during the 1985-87 period, average weekly wage earned during this period, and industries of employment. The data are reported for all program students as a group, thus the information is reported as an average. The industry of employment data includes all positions held

TABLE 2. Student Tracking from State Employment Wage Records
Sample Reports for Nursing and Automotive Technology

Program: **Nursing**

Year of Completion/ Exit	Number of Students	Number with Wage Records	1985 <---------> 1987 % Weeks Worked of total of 156 Weeks	Average Weekly Wage
1983	42	37 (88.1%)	80.3	$ 717.87
1986	77	71 (93.4%)	53.5	$ 309.17

Employment by industry (SIC) between 1985 and 1987 (duplicated count due to students holding more than one job since completion/exit):

1983	Total	Program Related	1986	Total	Program Related
Food and Kindred Products	1	0	Food & Kindred Prod.	2	0
Services	9	9	Services	23	21
Health Services	66	66	Health Services	141	141
			Lumber & Wood Prod.	2	0
			Transportation	2	1
			Retail Trade	24	0
			Finance, Insurance Real Estate	3	2
Total	76	75	Total	197	165

1983 - Placement Rate = 98.7% (75 of 76 positions)
1986 - Placement Rate = 83.8% (165 of 197 positions)

TABLE 2. Student Tracking from State Employment Wage Records
Sample Reports for Nursing and Automotive Technology (con't)

Program: **Automotive Technology**

Year of Completion/ Exit	Number of Students	Number with Wage Records	1985 <---------> 1987 % Weeks Worked of total of 156 Weeks	Average Weekly Wage
1983	24	22 (91.7%)	76.3	$ 411.04
1986	49	45 (91.8%)	51.5	$ 319.66

Employment by industry (SIC) between 1985 and 1987 (duplicated count due to students holding more than one job since completion/exit):

1983	Total	Program Related	1986	Total	Program Related
Construction	1	0	Construction	2	1
Manufacturing	17	4	Manufacturing	18	8
Transportation	5	2	Transportation	3	3
Wholesale Trade	4	3	Wholesale Trade	7	5
Retail Trade	20	12	Retail Trade	31	15
New & Used Car Dealer	7	7	New & Used Car Dealers	11	11
			Gasoline Service Stations	21	21
Services	23	17	Services	20	10
			Auto Repair Shops	15	15
			Finance, Insurance Real Estate	2	2
			Agriculture, Forestry, Fishing	1	0
Total	77	45	Total	131	91

1983 - Placement Rate = 58.4% (45 of 77 positions)
1986 - Placement Rate = 69.5% (91 of 131 positions)

during the period, and thus, represents a duplicated count since each individual student could have held more than one job over the three years.

The wage record search for these students and all students submitted achieved a match rate of 90 percent. This compares to about 50-60 percent response rate for the college's annual student follow-up survey of graduates, and 20-30 percent for non-completers. Thus, this approach allows the researcher to move from a non-random sample to the total population at less cost.

The average percentage of weeks employed over the three years is based on 156 weeks; there is no adjustment for vacation time, etc. Thus, it would be very unlikely that this percentage would approach 100. The 1983 students show an employment rate of about 80 percent compared to 50 percent for the 1986 students. This is to be expected since the 1986 students were enrolled during a majority of the 1985-87 period. This same difference is reflected in the salary and industries of employment data.

The average weekly salary during the 1985-87 period for the 1983 Nursing students was $717.87 compared to $309.17 for the 1986 students. This difference reflects the amount of time in the labor force and the fact that the students cannot be employed as nurses until they have graduated and passed the state license examination. For Automotive Technology, the 1983 students' average weekly salary was $411.04 compared to $319.66 for the 1986 students. Although the 1986 nursing and automotive students were earning roughly equivalent wages, the 1983 nurses were earning about $300 more a week than the 1983 automotive students. Although nurses do command higher average salaries than automotive mechanics, that difference would account for only about $50 of the reported $300. The key variable appears to be the placement rate for program related jobs. The 1983 nursing students have a placement rate of

98.7 percent and the 1986 students 83.8 percent. On the other hand, the comparable placement rates for the automotive students were 58.4 and 69.5 percent respectively.

The above placement rates are derived from the data describing employment by industry. This breakdown is by the Standard Industrial Classification (SIC) index for each position held during the 1985-87 period. Program related employment was determined from a state agency publication presenting an occupational profile for each industry. This profile indicates which program/occupations are found in each industry. For example, if a nursing student was employed within an industry that normally employs nurses, then that employment was coded as program related. Obviously, such an approach can result in misleading conclusions, but within the limitations of the tracking system, the error rate would be relatively low.

The data for the 1983 students reflects employment patterns after college while for the 1986 students the distribution reflects employment during and immediately after college. The major difference among the four reports is the relatively narrow distribution across SIC for the 1983 nursing students, reflecting a stable employment pattern within the field. The wider distribution for the 1986 nursing students obviously reflects employment while attending college (high concentration within Retail Trade SIC). The high employment rate with Nursing and Personal Care Facilities and Hospitals reflects their employment after graduation. The distribution patterns across SIC for the automotive students is similar for both the 1983 and 1986 groups. In fact, the 1986 students show a higher program related placement rate than the 1983 students.

From the wage record data an occupational profile can be developed and monitored for each of the college's programs and disciplines. The approach is

applicable both to traditional and non-traditional students as well as to different institutional types. This data does not provide evaluation feedback, except by inference, and should be used to supplement rather than replace the standard student follow-up survey. Given the large number of students covered and the longitudinal implications, however, this approach allows for a scope of student tracking that would not be financially feasible if relying solely on student surveys.

The state program tracking students through wage records is still developing. Future plans include the ability for the colleges to add student record data to the lists submitted. This would allow for breakdowns by sex, race, program completion status, etc., which could then be used to refine the occupational profiles.

Tracking the Transfer Student

A major characteristic of non-traditional students is that they may attend more than one college before completing the bachelor's degree. A large part of community college enrollment is composed of such students, who complete their lower division work at the community college (associate of Arts degree) and then transfer to a four-year college to complete their bachelor's degree. Within state environments increasingly focused on documenting student outcomes and experiencing fiscal constraint, the role of community colleges in attainment of the bachelor's degree has recently emerged as a key issue. Many states have or are in the process of conducting research that will hopefully clarify that role.

The research question would appear to be fairly straightforward, and since most student records are computerized, it would also appear to be a technically feasible undertaking. Yet there is relatively scant research in

the literature offering analysis of the community college/four-year connection in relationship to attainment of the bachelor's degree. It is suggested here that one must turn to the political realm for a full understanding of the issues involved.

There are basically two approaches to analysis of the transfer function in attainment of the bachelor's degree. One option is longitudinal in which the logical point of origin is high school graduation and/or initial entry to postsecondary education. Given the increasing length of time to degree completion, the major limitation to this approach is the ten to twenty year time span required to generate meaningful results. Kinnick, Westine, and Kempner (1987) addressed this problem through a follow-up survey of a selected high school graduation class. The major finding from this approach is that students that opt for the community college transfer route are less likely to achieve a four-year degree than are students who matriculate directly from high school to the four-year institution. This finding holds even when controlling for student background (performance in high school, socio-economic status, etc.) and student intent.

A variation of the longitudinal approach is offered by Belcher (1987) in which Associate of Arts graduates are tracked through upper division enrollment. This study reports that "After five years, about 65% of the A.A. graduates ... had enrolled in upper division and close to half of that group had graduated" (Belcher, 1987, p. 13). Belcher also reports that these results are consistent with similar studies. Of course, by beginning with completion of the A.A. degree, such an approach fails to measure the attainment of the A.A. students against the original pool of students seeking a four-year degree.

The second major approach to analysis of the transfer function is after the fact, which focuses on those students actually completing the bachelor's degree. The Washington State Board for Community College Education (1989) followed this approach based on a survey of a statewide sample of bachelor's degree recipients. The value of this approach is that it can reveal the magnitude of community college transfers within the bachelor's degree pool, and allows for comparison to those native to the four-year colleges and universities. "Among bachelor's degree recipients at public regional institutions, about 48 percent were students who transferred credits from a Washington community college. About 29 percent of the graduates at public research universities and 22 percent at independent colleges transferred community college credits. ... Community college transfers completed their bachelor's degree with the same majors, final year grades, and plans for the future as four-year natives ..." (State Board for Community College Education, 1989, p. 2).

The Washington study also found significant differences between community college transfer and native students. The former were older, had received less financial assistance from their parents, had lower high school grades, had more full-time work experience, and were more likely to be first generation college graduates. Such results offer insight to the role of community colleges with regard to social stratification and upward mobility. It can be inferred from such results that if not for the community college option, many of the community college transfer students would have never completed the bachelor's degree. Many simply would not have met the admissions requirements for or had the financial capability to attend a four-year institution at the time they entered the community college. If immediate entry to the four-year segment is not a viable option for many

community college students, it would follow that comparing these students to four-year natives is a moot point.

Despite any possible methodological limitations, at least the state of Washington has an empirical base from which to conduct further studies. The state from which this study is drawn has been attempting to implement an analysis of the community college transfer function in bachelor's degree attainment for several years. To date, the process has failed to produce any meaningful results. Representatives from the public two- and four-year segments have been engaged in protracted discussions concerning design and methodology. A major issue of contention has been the design for comparing achievement rates between transfer and native students. This discussion has evolved within an environment shaped by increasing competition between the two segments for state funds, articulation issues, and a state policy debate with regard to which segment the emphasis of lower division instruction should be focused. Ironically, the very issues that are preventing a cooperative research effort are in need of the research results to be resolved.

CONCLUSION

Non-traditional students are increasingly becoming the norm in higher education. Efforts to serve and respond to the needs of these students should be based on sound and informed institutional research. To this end, research on this student population has increased throughout the 1980s. Given the longitudinal requirements, the number of variables that need to be incorporated, and the cost factor, new and innovative approaches to such research will be needed if extensive, comparative, and institutional specific findings are to be forthcoming.

The purpose of this study has been to suggest and illustrate approaches that might facilitate extending the research on non-traditional students. The limitations of and obstacles to developing policy-relevant findings are numerous. However, there are proven strategies for addressing these issues. Perhaps the major challenge confronting researchers is the extent to which multi-institutional cooperation is needed to further the research agenda.

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